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EXAMINER	
RYMAN, DANIEL J	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/577,814	ROBERTS ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9, 11-24, 28, and 31-41* is/are rejected.

7)☒ Claim(s) *10-12,25-27,29 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/17/2003 have been fully considered but they are not persuasive. On pages 21-24 of the Response, Applicant argues with respect to the independent claims that Bleickart differs from the disclosed invention. While Examiner agrees with Applicant that the disclosed invention and the prior art contain differences, Examiner submits that such differences have not been claimed.

2. For instance, Applicant argues that "the 'hyper-concatenated data streams' required by the present claims are not merely lower rate signals produced by inverse multiplexing a specific higher rate signal, as in Bleickardt et al. Instead, the hyper-concatenated data streams are the results of inverse multiplexing 'a serial concatenated data stream containing an arbitrary mix of low bandwidth signals and high bandwidth concatenated signal'" (Response, page 24). In response to applicant's argument, it is noted that the features upon which applicant relies (i.e., hyper-concatenated data streams are the result of inverse multiplexing a serial concatenated data stream containing an arbitrary mix of low bandwidth signals and high bandwidth concatenated signal) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant argues that the phrase "hyper-concatenated" in the claims should be given a specific definition since "hyper-concatenated" is defined in the specification; however, unless a specific definition is added as a limitation to the claims, such a definition is not read into the claims on the basis of the

specification. As such, as broadly defined, the super-rate signal of Bleickardt is equivalent to the hyper-concatenated signal of the claims.

3. Applicant further argues that "the concatenation of the lower rate signals of Bleickardt et al is strictly defined by the desired inverse-multiplexing operation. For example, a system in accordance with Bleickardt et al designed to inverse multiplex an STS-3c signal into three STS-1 signals must receive an STS-3c signal, and can only output three STS-1 signal" (Response, page 24). Examiner, respectfully, disagrees. Bleickardt explicitly discloses "In a more general case, the super-rate signal would be transmitted over N STS-1 signals and must then be at a rate less than or equal to Nx49.536 Mb/s...In special cases, the super-rate signal may be an exact multiple of the STS-1 payload, i.e. Nx49.536 Mb/s" (col. 4, lines 6-21 and col. 5, lines 8-15). Thus, Bleickardt only requires that the super-rate signal (hyper-concatenated signal) be less than or equal to NxSTS-1 signals. As such, contrary to Applicant's assertion, Bleickardt can receive an arbitrary rate signal, and thus an arbitrarily concatenated signal.

4. Given the above arguments, Examiner has rejected the amended claims using the previously cited prior art. As Applicant noted in the arguments, differences between the disclosed invention and the prior art exist. In order to overcome the rejection, limitations distinguishing the disclosed invention from the prior art should be added to the claims.

5. Regarding the objections to the specifications, the listed objections were not corrected by amendment to the specification or the drawings. Examiner requests that these formal issues be corrected in the next correspondence.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Specification

7. The disclosure is objected to because of the following informalities: on page 15, line 20, page 16, lines 11 and 13, page 18, line 12, and page 30, lines 1 and 24 "ADM 14b" should be "ADM 14a" to match Figs. 1 and 2;

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. Claims 17, 18, 39, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The term "approximately" in claim 17 is a relative term which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes of prior art rejections Examiner will interpret "approximately twice" to be "twice".

10. The term "about" in claim 18 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes of prior art rejections Examiner will interpret "about 250" to be "250".

11. The term "approximately" in claim 39 is a relative term which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes of prior art rejections Examiner will interpret "approximately twice" to be "twice".

12. The term "approximately" in claim 41 is a relative term which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes or prior art rejections, Examiner will interpret "approximately 250" to be "250".

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 2, 5, 19-24, 28, 31-33, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bleickardt et al (USPN 5,461,622).

15. Regarding claims 1, 19, and 31, Bleickardt discloses a method of and nodes for transporting an arbitrarily concatenated input signal (super-rate signal) across a network using signals transmitted over a hyper-concatenated connection between a start node and an end node in the network (col. 1, lines 42-58; col. 2, line 44-61; col. 4, lines 6-21; and col. 7, line 49-col. 8, line 12), the method comprising steps of and the nodes comprising means for: a) receiving the arbitrarily concatenated input signal at the start node and splitting the input signal into a plurality of derived signals (Fig. 2 and col. 4, lines 6-21); b) transmitting the derived signals as hyper-concatenated data streams within respective ones of a plurality of independent channels, at least one of the hyper-concatenated data streams being routed through a pointer processing state machine that is independent of a pointer processing state machine through which another one of the hyper-concatenated data streams is routed (col. 1, lines 25-36; col. 2, lines 13-43; col. 2, line 61-col. 3, line 4; and col. 7, line 49-col. 8, line 12); and c) recombining the derived signals at the end node to form an output signal equivalent to the input signal (Fig. 5 and col. 6, lines 6-25).

16. Regarding claim 2, referring to claim 1, Bleickardt discloses that the output signal is output from the end node at a signal phase that is arbitrarily related to a signal phase of the derived signals (col. 7, lines 19-48) where "arbitrarily" is a very broad term which covers any relationship between the signal phase of the concatenated output and the signal phase of a derived signal and where since Bleickardt does not specify a phase relationship, the relationship is arbitrary.

17. Regarding claims 5, 22, and 32, referring to claims 1, 19, and 31, Bleickardt discloses that the input signal comprises an arbitrary mix of concatenated and unconcatenated Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) signals (col. 1, lines 8-10; col. 1, lines 42-58; col. 2, line 44-61; col. 4, lines 6-21; col. 5, lines 8-15; and col. 7, line 49-col. 8, line 12).

18. Regarding claim 20, referring to claim 19, Bleickard discloses that each hyper-concatenated channel has a signal bandwidth expressed as an integer M (where M>=I) of frames of the derived signal to be transmitted over each respective channel (col. 1, lines 41-55; col. 2, lines 44-54; col. 4, lines 6-21; and col. 7, line 67-col. 8, line 11).

19. Regarding claim 21, referring to claim 20, Bleickard discloses that M is selected from a group consisting of: 1, 2, or an integer multiple of 3 (col. 1, lines 41-55; col. 2, lines 44-54; col. 4, lines 6-21; and col. 7, line 67-col. 8, line 11).

20. Regarding claim 23, referring to claim 22, Bleickard discloses that each frame is an STS-n where n is an integer, and n >= 1 (col. 2, lines 55-61 and col. 7, line 67-col. 8, line 11).

21. Regarding claim 24, referring to claim 23, Bleickard discloses that n is equal to 1 (col. 2, lines 55-61 and col. 7, line 67-col. 8, line 11).

22. Regarding claim 28, referring to claim 21, Bleickardt discloses that the signal processor is adapted to determine the split location in the input signal in real-time as the input signal is received by the network node (col. 4, lines 6-44).

23. Regarding claim 33, referring to claim 31, Bleickardt discloses that the signal processor comprises, in respect of each hyper-concatenated data stream: a) an alignment buffer adapted to buffer payload data of a respective hyper-concatenated data stream (col. 7, lines 19-35); b) a

pointer processor adapted to detect a frame received in a respective data stream and determine a location of payload data in the frame (col. 2, line 11-col. 3, line 4 and col. 3, lines 22-28); c) a read controller responsive to the pointer processor and adapted to read the buffered payload data in an aligned condition across the channels of the hyper-concatenated connection into the concatenated output signal (col. 7, lines 28-48).

24. Regarding claim 38, referring to claim 33, Bleickardt discloses that the alignment buffers have a predetermined storage capacity based on an anticipated maximum difference between propagation times of the respective signals received on each hyper-concatenated data stream (col. 7, lines 19-35).

25. Regarding claim 40, referring to claim 38, Bleickardt discloses that the anticipated maximum difference in propagation delay between the respective hyper-concatenated data steams is less than a time interval required to receive a frame at the end node on any one of the hyper concatenated data streams (col. 7, lines 29-35).

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. Claims 3, 4, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622).

28. Regarding claim 3, referring to claim 1, Bleickardt discloses that the independent channels in the hyper-concatenated connection meet predetermined criteria, comprising: a) each

of the channels is processed by adjacent pointer processors in the start node and the end node (Figs. 2 and 5; col. 2, line 11-col. 3, line 4); and b) the channel order is identical at the start node and the end node (Figs. 2-5). Bleickardt does not expressly disclose that c) a maximum latency between the derived signals received at the end node on channels of the hyper-concatenated connection is less than a predetermined time interval; however, Bleickardt does disclose that the receiver is capable of realignment of frames that are misaligned by up to 64 frames (col. 3, lines 22-36 and col. 7, lines 19-35). Bleickardt also discloses that the receiver can be set to correct for a specific amount of through the length of the receiver's buffers (col. 7, lines 19-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the maximum latency between the derived signals in order to determine the size of the buffers in the receiver.

29. Regarding claim 4, referring to claim 3, Bleickardt discloses that the predetermined time interval is less than a time period required to receive a frame from a one of the derived signals at the end node (col. 7, lines 29-35).

30. Regarding claim 39, referring to claim 38, Bleickardt does not disclose that the predetermined storage capacity of the alignment buffer is adequate to store frame data received in a time interval equivalent to twice the anticipated maximum difference in propagation delay of the respective hyper-concatenated data streams since Bleickardt discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal (Bleickard: col. 7, lines 29-35). However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values

of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including twice the amount of the anticipated maximum difference, absent a showing of criticality by Applicant.

31. Regarding claim 41, referring to claim 38, Bleickardt does not disclose that the predetermined storage capacity is adequate to store frame data received during a period of 250 uSec; however, Bleickardt discloses that an amount of data is stored in a predetermined storage capacity (Bleickard: col. 7, lines 29-35). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt discloses

storing an amount a data in a predetermined storage capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including 250 uSec of data, absent a showing of criticality by Applicant.

32. Claims 6, 7, 13, 34, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) as applied to claims 1, 5, and 33 above, and further in view of Yoshifuji (USPN 5,537,405).

33. Regarding claim 6, referring to claim 5, Bleickardt does not disclose that the step of splitting the input signal into the plurality of derived signals comprises a step of inspecting an overhead of each frame of the input signal to determine whether the overhead contains a payload pointer or a concatenation indicator. Yoshifuji teaches, in a system for demultiplexing a concatenated data stream, inspecting an overhead of each frame of the concatenated input signal to determine whether the overhead contains a payload pointer or a concatenation indicator in order to determine how to process the signal depending on whether the signal is a concatenated or a non-concatenated signal (col. col. 1, line 56-col. 2, line 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to inspect an overhead of each frame of the input signal to determine whether the overhead contains a payload pointer or a concatenation indicator in order to determine how to process the signal depending on whether the signal is a concatenated or a non-concatenated signal.

34. Regarding claim 7, referring to claim 6, Bleickardt in view of Yoshifuji discloses storing the payload pointer if a payload pointer is found in the overhead (Yoshifuji: col. 5, lines 11-30) where it is implicit that if the concatenation indicators of the concatenated signals are to be

replaced with pointers of the first stream of the concatenated signal that the pointers of the streams must be stored such that the pointers can be retrieved during the replacement process.

35. Regarding claims 13, 34, and 37, referring to claims 1 and 33, Bleickardt discloses c) reading out payload data of the derived signals in alignment across all of the channels of the hyper-concatenated connection to provide the concatenated output signal (Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66). Bleickardt does not disclose that the step of recombining the derived signals at the end node to form a concatenated output signal further comprises steps of: a) examining an overhead of each frame of the derived signals to determine whether the overhead includes a split indicator; b) if the overhead includes a split indicator, replacing a payload pointer in the overhead with a concatenation indicator. Yoshifuji teaches, in a system for demultiplexing a concatenated data stream, replacing concatenation indicator values of each demultiplexed data stream with preset fixed values in order to have each demultiplexed data stream be treated on an individual basis (col. 1, line 6-col. 2, line 55). Yoshifuji also teaches placing concatenation indicator values in the headers of each derived signal in order to multiplex the derived signals into a concatenated signal in which all of the derived signals are treated as a single data unit for more efficient transmission (col. col. 1, line 56-col. 2, line 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) examine an overhead of each frame of the derived signals to determine whether the overhead includes a preset value; b) if the overhead includes a preset value, replacing a payload pointer in the overhead with a concatenation indicator in order to multiplex the derived signals into a concatenated signal in which all of the derived signals are treated as a single data unit for more efficient transmission. Bleickardt in view of Yoshifuji does not expressly disclose that the preset

value is a split indicator; however, split indicators, such as sequence numbers, are well known in the art of inverse multiplexing in order to provide the receiver a means to determine the proper sequence in which to recombine the derived signals. It would have been obvious to one of ordinary skill in the art at the time of the invention to use split indicators for the preset values in order to provide the receiver a means to determine the proper sequence in which to recombine the derived signals.

36. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) in view of Yoshifuji (USPN 5,537,405) as applied to claims 1, 5, and 33 above, and further in view of Sugawara et al (USPN 6,094,440).

37. Regarding claims 8 and 9, referring to claim 7, Bleickardt in view of Yoshifuji does not expressly disclose setting SS bits of an Hl byte of the overhead portion of the frame to a default value. Sugawara discloses that the SS bits in SONET are undefined and that "in the SONET system, the undefined bit is '0', so that the SS bits are made to be '00'" (col. 1, lines 50-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to set the SS bits of an Hl byte of the overhead portion of the frame to a default value of "00" since in the SONET system the SS bits are undefined and the undefined bit is '0'.

38. Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) in view of Yoshifuji (USPN 5,537,405) as applied to claim 13 above, and further in view of Parruck et al (USPN 5,257,261).

39. Regarding claim 14, referring to claim 13, Bleickardt in view of Yoshifuji discloses controlling a read operation for reading the payload data of a derived data stream from a reference alignment buffer such that a position of a derived read pointer permits corresponding

payload data to be read simultaneously from each derived data stream (Bleickardt: Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66); and d) reading the payload data of each derived data stream from respective alignment buffers based on the reference read operation, so that payload data of each of the data streams is read from the respective alignment buffers in alignment with corresponding payload data of a derived data stream (Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66). Bleickardt in view of Yoshifuji does not disclose that the step of reading out the payload data of the derived signals received at the end node comprises steps of: a) designating a data steam in the hyper-concatenated connection as a reference data stream; b) designating all other data steams of the hyper-concatenated connection as slaves to the reference data stream; c) controlling a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from each slave data stream; and d) reading the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream. Parruck teaches, in a system for concatenating a plurality of data streams, a) designating a data steam in the low rate connection as a reference data stream (master) (Fig. 1b and col. 3, lines 42-68); b) designating all other data steams of the data connection as slaves to the reference data stream (Fig. 1b and col. 3, lines 42-68); c) controlling a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from each slave data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54);

and d) reading the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54) in order to provide a means for concatenating any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) designate a data steam in the hyper-concatenated connection as a reference data stream; b) designate all other data steams of the hyper-concatenated connection as slaves to the reference data stream; c) control a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from each slave data stream; and d) read the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream in order to provide a means for concatenating any number of signals.

40. Regarding claim 15, referring to claim 14, Bleickardt in view of Yoshifuji in further view of Parruck discloses that the alignment buffers have a predetermined storage capacity based on an anticipated maximum difference between propagation delays of the respective derived signals (Bleickard: col. 7, lines 19-35).

41. Regarding claim 16, referring to claim 15, Bleickardt in view of Yoshifuji in further view of Parruck discloses that the anticipated maximum difference between propagation delays of the

respective derived signals is less than a time interval required to receive one of the frames at the end node (Bleickard: col. 7, lines 29-35).

42. Regarding claim 17, referring to claim 15, Bleickardt in view of Yoshifuji in further view of Parruck does not disclose that the predetermined storage capacity is sufficient to store a quantity of payload data received in twice the anticipated maximum difference between propagation delays of the respective frames of each derived signal since Bleickardt in view of Yoshifuji in further view of Parruck discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal (Bleickard: col. 7, lines 29-35). However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt in view of Yoshifuji in further view of Parruck discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any

amount of data, including twice the amount of the anticipated maximum difference, absent a showing of criticality by Applicant.

43. Regarding claim 18, referring to claim 17, Bleickardt in view of Yoshifuji in further view of Parruck does not disclose that the predetermined storage capacity is adequate to store a quantity of payload data received during a time interval of 250 uSec; however, Bleickardt in view of Yoshifuji in further view of Parruck discloses that an amount of data is stored in a predetermined storage capacity (Bleickard: col. 7, lines 29-35). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt in view of Yoshifuji in further view of Parruck discloses storing an amount a data in a predetermined storage capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including 250 uSec of data, absent a showing of criticality by Applicant.

44. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) as applied to claim 33 above, and further in view of Parruck et al (USPN 5,257,261).

45. Regarding claim 35, referring to claim 33, Bleickardt does not disclose a) designating one of the hyper-concatenated data streams as a reference data stream; and b) designating all others of the hyper-concatenated data streams as slave data streams. Parruck teaches, in a system for concatenating a plurality of data streams, a) designating one of the hyper-concatenated data streams as a reference data stream (master) (Fig. 1b and col. 3, lines 42-68); b) designating all others of the hyper-concatenated data streams as slave data streams (Fig. 1b and col. 3, lines 42-68) in order to provide a means for concatenating any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) designating one of the hyper-concatenated data streams as a reference data stream; and b) designating all others of the hyper-concatenated data streams as slaves data streams in order to provide a means for concatenating any number of signals.

46. Regarding claim 36, referring to claim 35, Bleickardt does not disclose that a reference read controller is adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream. Parruck teaches, in a system for concatenating a plurality of data streams, having a reference read controller adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54) in order to provide a means for concatenating any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the

time of the invention to have a reference read controller adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream in order to provide a means for concatenating any number of signals.

Allowable Subject Matter

47. Claims 10-12, 25-27 and 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

48. Claims 10-12 are allowable because the prior art does not disclose or fairly suggest comparing a frame count with a predetermined constant to determine if the frame should be transmitted over a next independent channel in the hyper-concatenated connection or inserting a split indicator into the SS bits. The prior art teaches interleaving bytes of the concatenated signal in order to decrease latency. Prior art is silent about indicating a split indicator in the SS bits.

49. Claims 25-27 and 29-30 are allowable because the prior art does not disclose or fairly suggest having means for identifying each frame within the concatenated input signal that satisfies a condition (p*M)+I, for integers p, in order to determine a split location for the concatenated input signal. The prior art teaches interleaving bytes of the concatenated signal in order to decrease latency.

Conclusion

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Parruck et al (USPN 5,331,641) see entire document which pertains to retiming and

realigning STS-1 signals into STS-3 signals. Partridge et al (USPN 6,160,819) see col. 1, line 41-col. 4, line 60 which pertain to inverse multiplexing. Bowmaster (USPN 5,455,832) see col. 4, line 45-col. 5, line 27 which pertains to concatenation indications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703)308-6743.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Daniel J. Ryman
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